

10-19-05

ZW  
AFF

Attorney Docket no. 12075

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Applicant** : Bruchmann et al.  
**Serial No.** : 09/811,987 : **Group:** 1711  
**Atty. No** : 12075 : **Examiner:** Sergeant, R.  
**Filed** : March 19, 2001 : **Confirmation No.** 9596  
**Title** : HIGH-FUNCTIONALITY ISOCYANATES

**BRIEF ON APPEAL**

Mail Stop Appeal Brief - Patents  
**Commissioner for Patents**  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Dear Sir:

Subsequent to the filing of the Notice of Appeal dated August 18, 2005 by the OIPE, Applicants now submit a brief in support of the appeal in response to the Final Rejection set forth in the Office Action dated May 19, 2005. A single copy of this Appeal Brief is being submitted in accordance with 37 C.F.R. §41.37 and this Appeal Brief is accompanied by the required fee of \$500.00 under §41.20(b).

The Patent Office is authorized to charge or refund any fee deficiency or excess to Deposit Account No. 08-2789.

10/20/2005 MAHMED1 00000081 09811987

500.00 OP

01 FC:1402

**TABLE OF CONTENTS**

	<b><u>Page</u></b>
<b>I. Real party in interest.....</b>	<b>1</b>
<b>II. Related appeals and interferences.....</b>	<b>2</b>
<b>III. Status of claims.....</b>	<b>3</b>
<b>IV. Status of amendments.....</b>	<b>4</b>
<b>V. Summary of claimed subject matter.....</b>	<b>5</b>
<b>VI. Grounds of rejection to be reviewed on appeal.....</b>	<b>9</b>
<b>VII. Argument.....</b>	<b>10</b>
<b>A. Rejection of claims 1-5 and 8-10</b>	
under 35 U.S.C. §103(a) .....	10
<b>B. Rejection of claims 13-16 under 35 U.S.C. §103(a) .....</b>	<b>13</b>
<b>VIII. Claims appendix.....</b>	<b>18</b>
<b>IX. Evidence appendix.....</b>	<b>23</b>
<b>X. Related proceedings index.....</b>	<b>24</b>



Attorney Docket no. 12075

**I. Real Party in Interest**

The inventors assigned this application to the real party in interest BASF Aktiengesellschaft as evidenced by an assignment recorded at reel 011808, frame 0078.

**II. Related appeals and interferences**

There are no related appeals or interferences.

### **III. Status of claims**

Claims 1 and 4-13 have previously been presented. Claims 2 and 3 are in original form. Claims 1, 2, and 4-13 have been finally rejected under 35 U.S.C. §102 (b) or in the alternative under 35 U.S.C. §103 (a) based on Bauriedel U.S. Pat. No. 4,623,709 and are on appeal. Claim 3 has been objected to as dependent on a rejected base claim but indicated as allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. A set of the claims on appeal is found in the claims appendix.

**IV. Status of amendments**

All amendments have been entered and are reflected in the claims in the claims appendix.

**V. Summary of claimed subject matter****A. Independent claim 1**

Claim 1 is directed to a process for forming very high-functionality polyisocyanates having at least three free isocyanate groups and no free isocyanate reactive groups. Unlike the prior art the present invention presents a method for controlled and non-random building of these high-functionality polyisocyanates. By precisely controlling the reaction steps and conditions very well defined polyisocyanates can be created. The first step of the process is the creation of an addition product (A) containing only one group which is reactive toward isocyanate and at least two free isocyanate groups by reacting a diisocyanate or a first polyisocyanate (I) with compounds having two isocyanate reactive groups (b1), three isocyanate reactive groups (b2), or a mixture of (b1) and (b2). At least one of (I) or the isocyanate reactive compounds (b1) and/or (b2) has functional groups having differing reactivities toward the functional groups of the other and the reaction ratio is chosen so that the addition product (A) has only one group which is reactive toward isocyanate and at least two free isocyanate groups. Optionally, one can promote an intermolecular addition reaction of product (A) to form a polyaddition product (P) which also has only one isocyanate reactive group and more than two free isocyanate groups. The second step in the method is reaction of the isocyanate reactive group of the addition product (A) or polyaddition product(P) with a diisocyanate or polyisocyanate (II) to form the high-functionality polyisocyanate having at least three free isocyanate groups and no free isocyanate reactive groups. The specific limitations of independent claim 1 and the support for each in the specification are provided below in Table 1.

**TABLE 1**

Claim 1 limitations	Support for the limitation in the specification
<p>A process for preparing high-functionality polyisocyanates having at least three free isocyanate groups, which comprises</p> <p>(i) preparation of an addition product (A) which contains only one group which is reactive toward isocyanate and at least two free isocyanate groups by reacting</p>	<p>Support for this limitation can be found in the Abstract and in the specification at: page 2, line 20 through page 3, line 15; page 3, lines 25-34; and examples 1-3.</p>
<p>(a) a diisocyanate or polyisocyanate I with</p>	<p>Support for this limitation can be found in the Abstract and in the specification at: page 2, line 20 through page 3, line 15; page 3, line 36 through page 4, line 23; and examples 1-3.</p>
<p>(b1) compounds having at least three groups which are reactive toward isocyanate or</p>	<p>Support for this limitation can be found in the Abstract and in the specification at: page 2, line 20 through page 3, line 15; page 5, line 5 through page 6, line 27;</p>



	and examples 1-3.
(b2) compounds containing two groups which are reactive toward isocyanate or mixtures of (b1) and (b2),	Support for this limitation can be found in the Abstract and in the specification at: page 2, line 20 through page 3, line 15; page 5, line 5 through page 6, line 27; and examples 1-3.
where at least one of the components (a) or (b) has functional groups having differing reactivities toward the functional groups of the other component and the reaction ratio is selected so that the addition product (A) contains an average of only one group which is reactive toward isocyanate, and at least two free isocyanate groups.	Support for this limitation can be found in the Abstract and in the specification at: page 2, line 20 through page 3, line 15; page 6, line 29 through page 8, line 18; and examples 1-3.
(ii) optionally, intermolecular addition reaction of the addition product (A) to form a polyaddition product (P) containing an average of only one group which is reactive toward isocyanate and an average of more than two free isocyanate groups, and	Support for this limitation can be found in the Abstract and in the specification at: page 2, line 20 through page 3, line 15; page 8, line 28 through page 9, line 30; and examples 4-6.
(iii) reaction of the isocyanate reactive group of said addition product (A) and/or the polyaddition product (P) with a	Support for this limitation can be found in the Abstract and in the specification at: page 2, line

<p>diisocyanate or polyisocyanate II to form a high-functionality polyisocyanate having at least three free isocyanate groups and no free isocyanate reactive groups.</p>	<p>20 through page 3, line 15; page 4, line 25 through page 5, line 3; page 11, lines 19 through 42; and examples 7-16.</p>
---	---

**VI. Grounds of rejection to be reviewed on appeal**

Claims 1, 2, and 4-13 have been finally rejected under 35 U.S.C. §102 (b) or in the alternative under 35 U.S.C. §103 (a) based on Bauriedel U.S. Pat. No. 4,623,709 and are on appeal.

## VII. Argument

### A. Rejection of claims 1, 2 and 4-13 under 35 U.S.C. § 102(b)

Rejection of a claim as anticipated under 35 U.S.C. § 102(b) requires that each and every limitation of the rejected claim be found in a single reference, if even a single limitation is not found in the reference then a rejection under 35 U.S.C. § 102(b) can not be maintained. *See Rockwell International Corp. v. United States* 147 F3d 1358, 1363, 47 USPQ2d 1027, 1031 (Fed. Cir. 1998); *see also Electro Medical Systems, S.A. v. Cooper Life Sciences, Inc.* 34 F3d 1048, 1052, 32 USPQ2d 1017, 1019-20 (Fed. Cir. 1994). It is not sufficient that the reference is substantially the same as the rejected claim, it must be identical. *See Jamesbury Corp. v. Litton Industrial Products, Inc.* 756, F2d. 1556, 1560, 225 USPQ 253, 256 (Fed. Cir. 1985).

In the present case the Examiner has failed to demonstrate that each and every limitation of the rejected claim 1 can be found in the cited reference. The Examiner suggests that Bauriedel discloses preferred ratios of initial hydroxyl groups to initial isocyanate groups which will yield applicants' claimed addition product (A). The Examiner points to the abstract and columns 2-5, especially column 5, line 4, within Bauriedel. Additionally, the Examiner points to column 3, line 45 to support the assertion that Bauriedel teaches a first stage product wherein it contains only a single hydroxyl group after the first stage.

As a first matter it is important to note that Bauriedel only discloses the use of diisocyanate compounds, no polyisocyanates having more than two isocyanate (NCO) groups are disclosed. Use of a diisocyanate in the first stage of the present invention requires that the isocyanate reactive compound be a (b1) compound and have at least three isocyanate reactive groups. This is the only way using a diisocyanate to produce a

product (A) as required by the present invention that contains only one isocyanate reactive group and at least two free isocyanate groups. All the examples disclosed in Bauriedel utilize only a diol as the isocyanate reactive component and use of diisocyanates only, no polyisocyanates. Thus, it is impossible utilizing the examples of Bauriedel to generate in addition product (A) as required by claim 1 of the present invention.

Bauriedel does state in column 3, line 63 through column 4, line 8 that the starting compound could be up to a hexonal. Even given this disclosure it is clear from other sections of Bauriedel that Bauriedel never contemplates or teaches the concept of forming an addition product (A) having only a single isocyanate reactive group and at least two free isocyanate groups. In column 2, lines 12-19 of Bauriedel it is stated that the first stage of the process is a reaction between a diisocyanate having isocyanates of differing reactivities and a polyhydric alcohol at a OH:NCO ratio of 0.55-4:1 **“until virtually all of the faster-reacting of the two isocyanate moieties have been reacted with OH moieties, forming a first stage pre-polymer having a substantial number of free OH moieties attached through the alcohol nucleus”** (emphasis added). In the section the Examiner points to in column 3, line 38 - 46 the full quotation is “Stated in its broadest terms, the minimum requirement for the first category of isocyanate is that two isocyanate moieties of differing reactivity are present. **The more reactive isocyanate moiety substantially reacts with one of the hydroxyl moieties of the polyol in the first stage of the prepolymer reaction, leaving an unreacted (mostly the less reactive) isocyanate moiety and an unreacted hydroxyl moiety on the first stage prepolymer.**” (emphasis added). Thus, even in the example the Examiner uses the limitations of

claim 1 are not met. There is not a first stage product having a single isocyanate-reactive moiety and at least two free isocyanates.

In column 2, lines 60-64 Bauriedel states the first stage is continued “until the more reactive NCO moieties of the diisocyanate have reacted almost completely with **some of the available OH moieties** without the less reactive NCO moieties having reacted to any significant extent, if at all.” (emphasis added) Finally, in column 4, line 68 through column 5, line 4 Bauriedel states “Thus, suitable first stage prepolymers **which still contain free OH moieties after the more reactive NCO moieties have reacted off are formed when the ratio of OH moieties to isocyanate moieties is adjusted to 0.55-4:1**” (emphasis added). It is hard to rationalize why this similar language should be treated by the Examiner as alternately referring to the product versus to the reaction mass or product composition. It seems more rational, logical, and consistent with the teachings of Bauriedel to treat the language as Applicants have.

Applicants contend that Bauriedel teaches a method wherein the product of the first stage either has only a single free isocyanate group and a single free isocyanate-reactive group or the product has multiple free isocyanate-reactive groups unlike the requirements of claim 1. Despite the Examiners reluctance to agree, applicants contend that Bauriedel clearly discloses and teaches a process that does not result in an addition product (A) having only a single isocyanate reactive group and at least two free isocyanate groups. Bauriedel instead discloses reacting the isocyanate reactive compound with an asymmetric **diisocyanate** such that the resulting addition product, itself, contains multiple free OH groups or, when using a diol only one free OH group and one free NCO group. Thus, because Bauriedel does not include one of

more limitations of claim 1 as discussed above the rejection of claim 1, and the claims that depend therefrom, under 35 U.S.C. § 102(b) based on Bauriedel is improper and must be withdrawn.

**B. Rejection of claims 1, 2 and 4-13 under 35 U.S.C. § 103(a)**

Rejection of a claim under 35 U.S.C. § 103(a) requires that a reference be considered for all it teaches including disclosures that teach away from the invention. *See Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.* 776 F.2d 281, 295 footnote 17 227 USPQ 657, 665 footnote 17 (Fed. Cir. 1985). A rejection under 35 U.S.C. § 103(a) based on a single reference requires that there be a showing of a suggestion or motivation to modify the teachings of the reference in the reference itself. *See B.F. Goodrich Co. v. Aircraft Breaking Sys. Corp.* 72 F.3d 1577, 1582 37 USPR2d 1314, 1318 (Fed. Cir. 1996). In the present case there has been no showing of a motivation or suggestion to modify in the reference and taken as a whole the reference teaches away from the present invention.

The Examiner again points to columns 2 – 5 of Bauriedel to support the rejection of claims 1, 2, and 4-13 under 35 U.S.C. §103(a). As discussed in the previous section, however, Bauriedel teaches away from Applicants' invention. Bauriedel only discloses and teaches the use of diisocyanate compounds, no polyisocyanates having more than two NCO groups are disclosed. Use of a diisocyanate in the first stage of the present invention requires that the isocyanate reactive compound be a (b1) compound and have at least three isocyanate reactive groups. This is the only way using a diisocyanate to produce a product (A) as required by the present invention that contains only one isocyanate reactive group and at least two free isocyanate groups. All the examples

disclosed in Bauriedel utilize only a diol as the isocyanate reactive component and use of diisocyanates only, no polyisocyanates. Thus, it is impossible utilizing the teaching examples of Bauriedel to generate in addition product (A) as required by claim 1 of the present invention.

Bauriedel does state in column 3, line 63 through column 4, line 8 that the starting compound could be up to a hexonal. Even given this disclosure it is clear from other sections of Bauriedel that Bauriedel never contemplates or teaches the concept of forming an addition product (A) having only a single isocyanate reactive group and at least two free isocyanate groups even if a hexonal were used. In column 2, lines 12-19 of Bauriedel it is stated that the first stage of the process is a reaction between a diisocyanate having isocyanates of differing reactivities and a polyhydric alcohol at a OH:NCO ratio of 0.55-4:1 **“until virtually all of the faster-reacting of the two isocyanate moieties have been reacted with OH moieties, forming a first stage pre-polymer having a substantial number of free OH moieties attached through the alcohol nucleus”** (emphasis added). Thus, the reference teaches that in the first stage a pre-polymer having a substantial number of free OH moieties attached through the alcohol nucleus is formed. This is the opposite of what is required by the present invention which requires a first stage product having only a single isocyanate reactive group and at least two free isocyanate groups. In the section the Examiner points to in column 3, line 38 - 46 the full quotation is “Stated in its broadest terms, the minimum requirement for the first category of isocyanate is that two isocyanate moieties of differing reactivity are present. **The more reactive isocyanate moiety substantially reacts with one of the hydroxyl moieties of the polyol in the first stage of the prepolymer reaction, leaving an unreacted (mostly the less reactive)**



**isocyanate moiety and an unreacted hydroxyl moiety on the first stage prepolymer.”** (emphasis added). Thus, even in the example the Examiner uses the limitations of claim 1 are not met, taught, nor made obvious. There is no teaching of a first stage product having a single isocyanate-reactive moiety and at least two free isocyanates. Instead there is a teaching away from this pre-polymer. In column 2, lines 60-64 Bauriedel states the first stage is continued “until the more reactive NCO moieties of the diisocyanate have reacted almost completely with **some of the available OH moieties** without the less reactive NCO moieties having reacted to any significant extent, if at all.” (emphasis added) Finally, in column 4, line 68 through column 5, line 4 Bauriedel states “Thus, suitable first stage prepolymers **which still contain free OH moieties after the more reactive NCO moieties have reacted off are formed when the ratio of OH moities to isocyanate moieties is adjusted to 0.55-4:1**” (emphasis added). It is hard to rationalize why this similar language should be treated by the Examiner as alternately referring to the product versus to the reaction mass or product composition. It seems more rational, logical, and consistent with the teachings of Bauriedel to treat the language as Applicants have. Applicants contend that Bauriedel teaches a method wherein the product of the first stage either has only a single free isocyanate group and a single free isocyanate-reactive group or the product has multiple free isocyanate-reactive groups unlike the requirements of claim 1. Despite the Examiners reluctance to agree, applicants contend that Bauriedel clearly discloses and teaches a process that does not result in an addition product (A) having only a single isocyanate reactive group and at least two free isocyanate groups. Bauriedel instead discloses reacting the isocyanate reactive compound with an asymmetric **diisocyanate** such that the resulting addition product, itself, contains

multiple free OH groups or, when using a diol only one free OH group and one free NCO group.

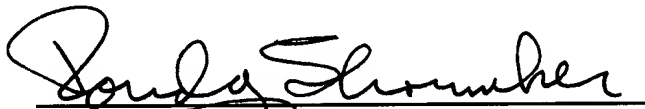
There is no discussion or disclosure within Bauriedel which would lead one of ordinary skill in the art to modify Bauriedel to generate a first stage reaction product or the process as claimed in claim 1 of the present invention. All of Bauriedel teaches away from such a first stage pre-polymer. There can be found no motivation in Bauriedel to modify the process disclosed therein. Thus, the rejection of claim 1, and the claims which depend therefrom under, 35 U.S.C. §103(a) based on Bauriedel cannot be maintained and must be withdrawn.

**Respectfully submitted,**

**HOWARD & HOWARD ATTORNEYS, P.C.**

**October 18, 2005**

Date

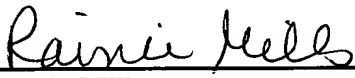


**Randy Shoemaker, Reg. No. 43,118**

Howard and Howard & Howard Attorneys PC  
The Pinehurst Office Center, Suite #101  
39400 Woodward Avenue  
Bloomfield Hills, MI 48304-5151  
(248) 645-1483

**CERTIFICATE OF EXPRESS MAILING**

I hereby certify that the attached Appeal Brief for application serial number 09/811,987 filed March 19, 2001 is being deposited with the United States Postal Service as Express Mail EV 564947263 US in an envelope addressed to Mail Stop Appeal Brief – Patents, Commissioner of Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on this **October 18, 2005**.

  
\_\_\_\_\_  
Rainie Mills

## VIII. Claims appendix

1. (Previously presented) A process for preparing high-functionality polyisocyanates having at least three free isocyanate groups, which comprises

(i) preparation of an addition product (A) which contains only one group which is reactive toward isocyanate and at least two free isocyanate groups by reacting

(a) a diisocyanate or polyisocyanate I with

(b1) compounds having at least three groups which are reactive toward isocyanate or

(b2) compounds containing two groups which are reactive toward isocyanate or mixtures of (b1) and (b2),

where at least one of the components (a) or (b) has functional groups having differing reactivities toward the functional groups of the other component and the reaction ratio is selected so that the addition product (A) contains an average of only one group which is reactive toward isocyanate, and at least two free isocyanate groups.

(ii) optionally, intermolecular addition reaction of the addition product (A) to form a polyaddition product (P) containing an average of only one group which is reactive toward isocyanate and an average of more than two free isocyanate groups, and

(iii) reaction of the isocyanate reactive group of said addition product (A) and/or the polyaddition product (P) with a diisocyanate or polyisocyanate II to form a high-functionality polyisocyanate having at least three free isocyanate groups and no free isocyanate reactive groups.

2. (Original) A process as claimed in claim 1, wherein the diisocyanate or polyisocyanate I is different from the diisocyanate or polyisocyanate II.

3. (Original) A process as claimed in claim 1 or 2, wherein the diisocyanate or polyisocyanate I used is tetramethylene diisocyanate, tetramethylene diisocyanate trimer, hexamethylene diisocyanate, hexamethylene diisocyanate trimer, dodecyl diisocyanate, isophorone diisocyanate trimer, 4-isocyanatomethyloctamethylene 1, 8-diisocyanate, diphenylmethane 4, 4'-diisocyanate or a mixture thereof.

4. (Previously presented) A process as claimed in claim 1 or 2, wherein the diisocyanate or polyisocyanate I has isocyanate groups of differing reactivity and comprises tolylene 2,4-diisocyanate, tolyene 2,6-diisocyanate, diphenylmethane 2,4'-diisocyanate, phenylene 1,3- and 1,4-diisocyanate, naphthylene 1,5-diisocyanate, tolidine diisocyanate, triisocyanatotoluene, biphenyl diisocyanate, isophorone diisocyanate, 2-butyl-2-ethylpentamethylene diisocyanate, 2-isocyanatopropylcyclohexyl isocyanate, 3 (4)-isocyanatomethyl-1-methylcyclohexyl isocyanate, 1,4-diisocyanato-4-methylpentane, 4-methylcyclohexane 1,3-diisocyanate, dicyclohexylmethane 2,4'-diisocyanate or mixtures thereof.

5. (Previously presented) A process as claimed in claim 1, wherein the diisocyanate or polyisocyanate II comprises tolylene 2,4-diisocyanate, tolylene 2,6-diisocyanate, diphenylmethane 4,4'-diisocyanate, diphenylmethane 2,4'-diisocyanate, polymeric diphenylmethane diisocyanate, naphthylene 1,5-diisocyanate, tolidine

diisocyanate, phenylene 1,3- and 1,4-diisocyanate, triisocyanatotoluene, biphenyl diisocyanate, tetramethylene diisocyanate, hexamethylene diisocyanate, dodecyl diisocyanate, lysine alkyl ester diisocyanate, where alkyl is C<sub>1</sub>- C<sub>10</sub>-alkyl, isophorone diisocyanate, 2-methylpentamethylene diisocyanate, 2,2,4- or 2,4,4-trimethylhexamethylene 1,6-diisocyanate, 1,3-diisocyanatocyclohexane, 1,4-diisocyanatocyclohexane, 3(4)-isocyanatomethyl-1-methyl-1-isocyanatocyclohexane, 2-butyl-2-ethylpentamethylene diisocyanate, 4-isocyanatomethyloctamethylene 1,8-diisocyanate, 2-isocyanatopropylcyclohexyl isocyanate, 2-methylcyclohexane 1,3-diisocyanate, 4-methylcyclohexane 1,3-diisocyanate, dicyclohexylmethane 4,4'-diisocyanate, dicyclohexylmethane 2,4'-diisocyanate, 1,3-bis(isocyanatomethyl)cyclohexane, 1,4-bis(isocyanatomethyl) cyclohexane, xylylene diisocyanate, tetramethylxylylene diisocyanate and isocyanates prepared from the isocyanates listed by coupling by means of urethane, allophanate, urea, biuret, uretdione, amide, isocyanurate, carbodiimide, uretonimine, oxadiazinetriene or iminooxadiazinedione structures, or mixtures thereof.

6. (Previously presented) A process as claimed in claim 1, wherein, in the reaction of the addition product (A) and/or the polyaddition product (P) with the diisocyanate or polyisocyanate II, the ratio of isocyanate groups of the diisocyanate or polyisocyanate II to the isocyanate-reactive groups of the addition product (A) and/or the polyaddition product (P) is selected so that at least 10% of the NCO groups of the diisocyanate or polyisocyanate II are reacted.

7. (Previously presented) A process as claimed in claim 1, wherein the

isocyanate-reactive groups of the components (b1) and/or (b2) are selected from hydroxyl groups, mercapto groups, amino groups and mixtures thereof.

8. (Previously presented) A process as claimed in claim 1, wherein the diisocyanate or polyisocyanate I used is isophorone diisocyanate, isophorone diisocyanate trimer, tolylene 2,4-diisocyanate, diphenylmethane 2,4'-diisocyanate, or mixtures thereof and the diisocyanate or polyisocyanate II used is hexamethylene diisocyanate, a hexamethylene diisocyanate oligomer containing isocyanurate, uretdione, urethane, allophanate, iminooxadiazinedione, or biuret groups, diphenylmethane 4,4'-diisocyanate, diphenylmethane 2,4'-diisocyanate, a mixture of diphenylmethane diisocyanates and polymeric diphenylmethane diisocyanate or a mixture of the isocyanates listed.

9. (Previously presented) A process as claimed in claim 1, wherein the compounds (b1) having groups which are reactive toward isocyanate are glycerol, trimethylolmethane, trimethylolethane, trimethylolpropane, 1,2,4-butanetriol, tris(hydroxymethyl) aminomethane, tris(hydroxyethyl) aminomethane, 2-amino-1, 3-propanediol, 2-amino-2-methyl-1, 3-propanediol, diethanolamine, dipropanolamine, diisopropanolamine, ethanolpropanolamine, bis(aminoethyl) amine, bis(aminopropyl) amine, trisaminononane, pentaerythritol, bis(trimethylolpropane), trifunctional polyetherols, tetrafunctional polyetherols, or polyesterols and the compounds (b2) used are ethylene glycol, diethylene glycol, triethylene glycol, tripropylene glycol, neopentyl glycol, 1,2-butanediol, 1,3-butanediol, 1,4-butanediol, 1,2-pentanediol, 1,3-pentanediol, 1,5-pentanediol, hexanediol, propane-1, 2-dithiol, butane-1, 2-dithiol, mercaptoethanol,

mercaptopropanol, mercaptobutanol, ethylenediamine, tolylenediamine, isophoronediamine, cysteamine, ethanolamine, N-methylethanolamine, propanolamine, isopropanolamine, 2-(butylamino) ethanol, 2-(cyclohexylamino) ethanol, 2-amino-1-butanol, 2-(2'-aminoethoxy) ethanol, alkoxylation products of ammonia, 4-hydroxypiperidine, 1-hydroxyethylpiperazine, aminopropanethiol, bifunctional polyetherols or polyesterols.

10. (Previously presented) A high-functionality polyisocyanate, prepared as claimed in claim 1.

11. (Previously presented) A high-functionality polyisocyanate prepared as claimed in claim 1 and which has both aliphatically bound and aromatically bound isocyanate groups.

12. (Previously presented) A paint, a varnish, a coating, an adhesive, a sealant, a pourable elastomer, or a foam comprising a high functionality polyisocyanate prepared as claimed in claim 1.

13. (Previously presented) A polyaddition product obtained using a high-functionality polyisocyanate as claimed in claim 10.



**IX. Evidence appendix**

**X. Related proceedings index**

None.